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THOMAS G. NEWMAN, EDITOR.

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EDITORIAL BUZZINGS.

The National Flower, what shall it be?
Of all the flowers where men have trod
In mountain home, or near the sea—
Give me the stately golden-rod.
—JUSTUS CHAPMAN.
Woodville, Mich., June 30, 1889.

Father Langstroth is still in poor health, and is yet this side of the borderland. Those who subscribed to his annuity last year, will please not forget to send him the amount for this year. He is needy, we know, and will appreciate it to its full extent.

The National Flower.—Since our article on this subject appeared, several papers have noticed our advocacy of the claims of the "Golden-rod" for the National flower. The New York *Tribune* for June 26, notices it thus:

Mr. Thomas G. Newman thinks that bee-keepers should vote for golden-rod as "the National flower."

We expected that the *Tribune* would either approve of the golden-rod or advocate some other flower—but it leaves that for others.

The *Tribune* sums up an interesting article from the AMERICAN BEE JOURNAL into a paragraph, and adds:

Marvellous, indeed, from every point of view, are these useful little insects, and if the foregoing data—condensed from a current column article—incite any young reader of the *Tribune* to desire further knowledge of their wonderful ways and mechanism, we commend to him or her the reading of Prof. Cook's admirable book; and in the way of periodical publications, Mr. Root's standard fortnightly *Gleanings*, and Thomas G. Newman & Son's old and always perennially-inviting weekly, the AMERICAN BEE JOURNAL.

A Grand Precedent is established by the decision of the Supreme Court of Arkansas, that "bee keeping is not *per se* a nuisance!" Bro. A. I. Root, in *Gleanings* for July, makes these comments on it, and the defense carried on by the Union:

The aid of the Bee-Keepers' Union was at once solicited, and the case was tried in Circuit Court, where it was decided that "the city ordinance was illegal and void;" that "keeping bees is not a nuisance." The case was carried to the Supreme Court, and Brother Newman just announces that the Union has, after an immense amount of worry and expense, again *won* the suit, and that a *grand precedent* has been established.

In no single instance has the Union been defeated; and it begins to seem now that, in view of its past victories, to enlist its aid means success every time.

It would be a terribly bad thing to have bees declared a nuisance by a Supreme Court, and perhaps there are but few bee-keepers who realize what the decision in the case of Mr. Z. A. Clark means.

Mr. Newman, the Manager of the Bee-Keepers' Union, informs us that $1,000 will be needed to prosecute the cases now on hand. Remember, you cannot expect assistance from the Union unless you are a member. The fees are $1.00 per annum.

Perhaps we should say here, that we are not in favor of trades-unions in general; but the Bee-Keepers' Union, under its present able management, we are sure has been productive of good. After we have a few more precedents established like the Arkadelphia case, outside parties will be slow to declare bees a nuisance.

We are just as much opposed to "trades-unions in general," as Bro. Root—the National Bee-Keepers' Union is quite another thing, however! It simply sets up a *defense* when its members are unjustly attacked! It will not defend even a member, unless his cause is *just;* and attacks growing out of ignorance, jealousy, prejudice, and the like, which threaten the pursuit in general, should of necessity be *repulsed vigorously!*

The "Union" orders no strikes, and makes no attacks—it simply *defends* the pursuit of bee-keeping, and fights in a *moral* and *legal* way, for *right, justice and truth!*

We publish a condensed history of the case in this issue of the BEE JOURNAL, so that all may get a proper understanding of it, and the points ruled upon by the Supreme Court. We shall also print it and the arguments and decisions of the Courts in pamphlet form, so as to be useful in all cases of similar import. Any one interested can obtain copies free at this office, by sending a stamp to pay the postage.

Encouraging Science.—The Vermont Microscopical Association has just announced that a prize of $250, given by the Wells & Richardson Co., the well-known chemists, will be paid to the first discoverer of a new disease germ. The wonderful discovery by Prof. Koch of the cholera germ, as the cause of cholera, stimulated great research throughout the world, and it is believed this liberal prize, offered by a house of such standing, will greatly assist in the detection of micro-organisms that are the direct cause of disease and death. All who are interested in the subject and the conditions of this prize, should write to C. Smith Boynton, M. D., Secretary of the Association, Burlington, Vt.

Taxing Bees.—Henry Stark, Plier, Wis., on July 2, 1889, asks this question:

The assessor valued my bees last year at $4.00 per colony, and this year at $1.00. There are others who have bees, which were not taxed. The assessor did not tax all the bees in the town or county. Must I pay a tax on my bees, or not?

It was the duty of the assessor to treat all alike—either to assess all, or not to assess any. It is very difficult to get justice done in this matter, and place every locality on the same basis. In some counties bees are always taxed, and in others they are never assessed. An assessment on the basis of one dollar per colony is quite reasonable—if all were treated alike. As you have this rate, it will not pay to kick very much. It may be increased, perhaps.

The Union.—Here is a letter just received from Mr. J. E. Pond, of North Attleboro, Mass., and dated June 29, 1889, which speaks for itself: "BRO. NEWMAN:—I have read the exhaustive argument of Judge S. W. Williams with pleasure, and *as a lawyer*, I wish to say that no Court can honestly differ from it or decide against it. When I say 'exhaustive,' I mean just what I say. It covers the whole ground; the decision in the Clark case must be for the defendant on constitutional law, and local law cannot avoid the Constitution. The decision *must* be for the defence; it cannot be otherwise."

Now what will our bee-keepers do? Will they say the Union is fighting for us, and we need do nothing; or will they do as they ought in reason and honor to do? viz: to aid the Union by becoming members thereof? Common decency would imply that they should. Now will they, or not?

On the Prevention of Swarming, Dr. C. C. Miller writes for *Gleanings* that he thinks he would give more to learn the best possible way to prevent swarming than to find out any other thing connected with bee-keeping. To the objection that "it is natural for bees to swarm," he replies: "It is just as natural for the swarm to go off." That is true; but the aim of the bee-keeper of to-day is to improve upon Nature's ways, by judicious breeding. Whether the propensity to swarm *can be* modified or bred out, remains to be seen.

Prang's National Flower is the title of a beautiful pamphlet which contains two colored plates of the two most popular candidates for selection as the National Flower of America. It also has two poems, and a postal card addressed to Messrs. L. Prang & Co., Boston, Mass., with a vote to be filled up for the selection of a National flower. The pamphlet costs 25 cents, and can be obtained at this office.

Bees settled in the top of a house near Atlanta, Ga., eight years ago, and the other day, when the gable end was removed, the entire roof was found to be filled with honey. So says an exchange.

To-Day and To-Morrow.

"Build a little fence of trust
Around to-day;
Fill the space with loving work,
And therein stay.

"Look out from the sheltering Bars
Upon to-morrow;
God will give grace to bear whate'er may come
Of joy and sorrow."

GLEAMS OF NEWS.

The Country is Flooded with that article which was written by a sensational reporter for the Philadelphia *Record*, and by it published on June 18, 1889. Now it is appearing in hundreds of papers all over the country. It being only the results of the "vain imagination" of the reporter, dished up in a sensational style, it is all the more acceptable, and "spreads like wild-fire."

The heading of the article is a triple one, and reads thus: "Bees Can Take a Rest. They are No Longer Needed as Honey-Makers. Commercial Cunning Makes the Comb of Paraffine and the Honey of Glucose, and the Public Can't Detect it." Then it goes on in this manner:

Wooden nutmegs must now yield the palm to bees' honey in the comb, *manufactured from paraffine and glucose.* The good old father of hymns, Isaac Watts, in the innocence of his heart, wrote these lines:

How doth the little busy bee
Improve each shining hour,
And gather honey all the day
From every opening flower.

All this, however, is but an illusion, for the bee has lent itself to the deceitful practices of scheming men, and, instead of diligently buzzing from flower to flower and gathering the sweetness thereof, the little deceiver now loafs around in the sweetly scented garden, while a few wicked bee-culturists fill a paraffine comb with syrup glucose and send it broadcast over the land as the honest product of the hard-working bee.

Here is the secret revealed by a confiding grocer, whose enthusiastic explanation of the bee-rearer's deception overshadows the ardor with which he sanded his sugar and put peas in his coffee: You see, there was a time when honey was honey, and honey-comb was pure beeswax, but, like everybody else, some bee-rearers wanted to get rich more rapidly, and the Simon-pure products of the bees would not yield sufficient profits, so the anxious seeker after wealth cast about him for an easier and more rapid road to riches.

It was first found that paraffine closely resembled beeswax, and after many trials combs were produced which were scarcely distinguishable in shape and geometrical accuracy from those actually built by the bees themselves.

Then this scribbling mephistopheles gets his foolish story mixed up in this fashion:

It was then found that when these artificial combs were placed in the hives the bees took to them as if they were of their own making, and filled them with honey. This plan once in operaton became a great saving to bee-culturists, as the bees no longer had to make their own comb, but were able to put in all their work making honey. Of course, now and then somebody objects to the quality of the wax, but the bee-raisers never minded any little thing like that, and they thought that they had struck the acme of success, until they made their next and greater discovery. This was that glucose, or grape sugar, closely resembled honey in appearance, and was a very fair counterfeit as far as taste was concerned. *Then there appeared in the market paraffine honey-comb filled with glucose honey*, and the occupation of the bee was gone. The first attempt was simply an adulteration of honey with glucose, and the proportion of the latter was gradually increased until there was little or no honey.

The Philadelphia *Record* here boldly asserts that "paraffine comb filled with glucose" has "appeared in the market." We ask **when** and **where** it has appeared on the market?

We **demand** that the *Record* find some of it to prove its story! Nothing else can save it from the infamy which attaches itself to the wilful fabricator!

A thousand dollars are offered for a single pound of the "paraffine comb filled with glucose and sealed over by machinery." Now the *Record* must either **put up** or **shut up.**

The last paragraph reads thus in the *Record:*

THE BUSY BEES' OCCUPATION GONE.—Nowadays the vitiated public taste scarcely recognizes pure honey when it is found, and ninety people out of every hundred eat their glucose in blissful ignorance, and a firm belief that they are partaking of the honest fruits of the labors of the diligent bee. All bees are not so depraved as to lend themselves to the deceptive practices of unscrupulous honey raisers, and some pure honey is still to be had, but it takes a long hunt to find it.

This is simply given to try to cover up its tracks! The statement is made that there **is** some pure honey—that is generous in the *Record* to allow that there **is** some pure honey on the market, but when it says that it "takes a long hunt to find it," it utters a *diabolical lie.*

Pure honey is now being industriously gathered by the bees, and is put up in immaculately pure combs, made of pure beeswax, and all done by the bees; and more, it can be found by any person in every market in America. Tons of it can be procured at market rates on a few days notice at this office.

Now the *Record* must either produce a sample of the bogus comb-honey it talks about, acknowledge that it was imposed upon by a reporter, or else rest under the odium of having told *wilful lies* for the sake of lying and injuring a legitimate pursuit!

Which horn of the dilemma will it take? Several copies of the Philadelphia *Record* have been received from our friends. One each came from the following: D. Marshall & Bro., Philadelphia, Pa.; George L. Transue, Easton, Pa.; and Geo. P. Howell, New Orleans, La.; the latter remarks as follows:

The enclosed article, copied from the Philadelphia *Record*, was published in the *Times-Democrat* of this city.

There are some mighty smart men in this world, and the father of the enclosed must consider himself one; on the other hand the balance has its share of fools that will believe every line in that article.

Yes; it is because of "the fools who will believe the article," that we demand that the charges be substantiated or the author of the falsehood be severely censured.

The Hot Weather which usually prevails in North America during May and June, "slipped a cog" this year, and jumping the Atlantic Ocean, prevailed all over Europe. The Government has issued a pamphlet, giving the report of the statistician, which gives the following for the different European countries named:

ENGLAND.—May has made a particularly good record, and we enter into June with every prospect of an abundant harvest. There has been a prevalence of brilliant sunshine with high degrees of heat both day and night, which has pushed forward vegetation at rapid pace. Such tropical heat in May has seldom been heretofore recorded, and coming after periods of rain, the result is highly satisfactory.

FRANCE.—With the exception of too frequent rain-falls the month marks a satisfactory progress in all vegetation, and the change to bright sunshine, which prevailed for the last four days, will speedily allay the fear of damage from moisture. Outside of any abnormal change in the weather, an abundant harvest is in prospect.

GERMANY has had fine forcing weather during much of the month of May, which closes with good reports from nearly all sides.

ITALY.—The general condition of the Italian crops has lost no ground in the month past.

AUSTRIA-HUNGARY.—In the official report of the Austrian Minister of Agriculture, published about the middle of the month, high mention was made of the beneficial effect of the weather upon the crops. The condition of the winter and spring crops were in most provinces excellent, and in some most favorable. The outlook is said not to have been so promising for years, the only region in which the expectations were moderate being Galicia.

The New Era Exposiion will be held at St. Joseph, Mo., commencing Sept. 3 and closing Oct. 5. It has been urged by those responsible for the financial success of Expositions, that unless the horse-jockey had a chance at a purse of thousands of dollars, while the farmer competed for premiums of from fifty cents to five dollars, that the Exposition could not be sustained. The New Era Exposition will try the Experiment of reversing the order of things, relying on the Agriculturists (who have hitherto loudly and justly complained) for an appreciation of efforts and a hearty co-operation. It offers premiums amounting to nearly $3,000, for all products of the farm, including fruit, live stock, BEES, poultry, etc. The list and rules governing exhibits will be mailed on application. Address, The New Era Exposition, Rooms 5 and 6, Post Office Building, St. Joseph, Mo.

Many Good Advertisers invite our readers to send for their descriptive Circulars, etc. It will pay to get these, and see what is for sale, by whom, at what prices, and what things are offered. Every one can learn something in this way. Please always tell advertisers *where* you saw their cards; they like to know, and we like to have them.

BIOGRAPHICAL.

HUBER.

His Life and Services to the Bee-Keeping World.

We take the following interesting sketch from Gravenhorst's *Illustrated Bee Journal*. It was written by Mr. T. Kellen, of Luxemburg. The translation is furnished by W. P. Root, for *Gleanings:*

Francis Huber, by his investigations and researches in apiculture, did more to promote this science than all his predecessors who had employed themselves in the study of this interesting insect. It is his discoveries alone that marked that golden age in the history of apiculture which is destined to remain for all ages. Huber's observations are not only of the greatest importance of themselves, but wonderful for the manner in which they were made; for Huber was blind.

This distinguished man was born in Geneva, July 2, 1750. He was the son of a prosperous and respectable family, which as early as the 17th century were celebrated for their knowledge of the arts and sciences. His father, John Huber (born in 1722, died in 1790), was well known on account of his attachment to the celebrated French philosopher Voltaire.

From his earliest youth Huber showed a passionate predilection for natural history, and he applied himself to study with such zeal as to endanger his health, so that at the age of fifteen the reflection of blinding snow destroyed his sight. If ever a man bitterly deplored the loss of eyesight, that man was Huber. But his misfortune did not hinder him from applying himself to the study of those insects for which he had an especial liking; namely, the bees. It was this little insect that turned the darkness of the investigator into day; for Huber was the first to see clearly into that domain which to the best eyes had previously remained in darkness.

Huber did not lose his vigor of mind, for he went forward in the study of bees; but he could do this only by the help of his wife, Marie-Aimee Lullin; his neice, Miss Jurine, and, above all, his servant Burnens. He himself manifested the most untiring perseverance, and the greatest ingenuity, so that, by Burnens' sagacity, all of Huber's experiments with bees were practically demonstrated.

Miss Jurine, who loved natural history above all else, supplemented Huber's work all she could, fearing not to take up the dissecting-knife and microscope in his aid. She was the first after Swammerdam to demonstrate that worker-bees are females. She it was, too, who, with Huber, established the principles on which the sages of our century grounded the doctrine of parthenogenesis. Besides that, Miss Jurine was Huber's secretary, full of willingness and self-devotion. Every day she noted down the results of the new investigations, and she also wrote the letters, which Huber dictated, to Charles Bonnet and his friends, and imparted to him the results of his labors, and directed their attention to numerous questions relating to bees.

Huber's interest in bees was greatly enhanced by the researches and writ-

FRANCIS HUBER.

ings of Swammerdam, Reaumur, Schirach, and probably also the celebrated Swiss bee-keeper, Duchet de Remauffens, and the Messrs. Gelieu. As a conclusion to the investigations of these men, it was possible for him, in spite of his unfortunate surroundings, to add greatly to the realm of apiculture; hence we may not forget that he everywhere encouraged and helped others by the nobility of his life.

In his latter days he lived retired, but in peace, at Lausanne, where he died Dec. 22, 1832, at the age of 83.

Huber's discoveries are known to scholars through his letters to Charles Bonnet; and they made his name so celebrated in all Europe, and even in America, that for many years he was recognized as the greatest apicultural genius; and even yet Hamet calls him the greatest of the lovers of bees (*le plus grand des apiphiles*).

It was in 1796 that his first epoch-making work was brought to light, bearing the title, *Nouvelles Observations sur les Abeilles* (New Observations on Bees). His son, Peter Huber, in 1814 issued the work in two editions, and added thereto an appendix in regard to the origin of wax.

Huber's work is, not only on account of its contents, but for the peculiar circumstances under which it was first brought to light, entirely without parallel in scientific literature. The recognition which it received was universal, so that, after the first appearance of the work, Huber was received into the French Academy of Sciences, and other scientific bodies.

The New Observations were translated into nearly every European tongue. The Saxon commissariat Riem, in Dresden, translated it into German in 1798, and Pastor Kleine, of Luethorst, translated it again in 1856, and published another edition in 1869, with notes.

Huber, by his observations on the secrets of bee-life, made clear what the most sagacious and learned observers from the time of Aristotle and Aristomachus down to Swammerdam and Reaumur had sought for in vain; and it is to be the more regretted that some German bee-keepers of great influence, such as, for instance, Spitzner and Matuschka, gave him no recognition.

He gave interesting explanations in regard to the habits of bees, their respiration, the origin of wax, the construction of comb, etc. He confirmed Schirach's proposition, that by a change in the mode of treatment and food of larval bees, queens could be reared from worker-eggs, and showed, likewise, the influence which the cell exerted on the insects.

He showed further, that not only the queen but a certain species of worker-bee could lay fertile eggs, and showed, likewise, the function of drones. In opposition to Braw, Hattorf, Contardi, Reaumur, and others, who held very peculiar opinions in regard to the fertilization of queens, Huber showed that the fertilization takes place outside of the hive, at the same time that drones are flying, and that the union is effected in the air, and that the queen, on her return from the flight, has adhering to her body the evidences of fertilization, and that egg-laying takes place about 46 hours afterward.

These and numerous other experiments he often proved in his works with the utmost exactness; and especially did he lay down the most important and interesting information in regard to feeding bees, their method of building, the leaf-hive, foul brood, etc., in his letters to an eminent apiculturist in Switzerland, Mr. C. F. P. Dubied. These eighteen very long letters of Huber, the first of which was

dated Oct. 12, 1800, and the last Aug. 12, 1814, were written partly by Huber himself, partly by his wife or daughter, to whom he dictated. So far as I know, this correspondence has never been translated into German, which is greatly to be regretted.

When one reads of Huber's observations, it becomes evident that the author interested himself in bees, from a scientific stand-point only. In one of his letters to a friend, he writes that he never realized any material benefit from bees. This is easy to understand when we consider that his experiments with them lasted the entire year through, and were conducted only for the sake of science; and one naturally inquires how he found bees enough to carry out his numerous experiments.

QUERIES and REPLIES.

How to Secure Large Increase of Colonies.

Written for the American Bee Journal

Query 642.—I have between 80 and 100 colonies of bees, and desire to increase them greatly by natural swarming. 1. What shall I do to accomplish it? 2. Will liberal feeding do it?—Vt.

Your second query answers the first. —J. M. HAMBAUGH.

1. Confine them to the brood-apartment. 2. Early feeding will help, if short of stores.—H. D. CUTTING.

1. Feed and give no surplus room. 2. Yes, with treatment as just stated. —MRS. L. HARRISON.

Liberal feeding and contraction of the brood-chamber will promote it.— J. P. H. BROWN.

Let them swarm. You will probably get all you want this year.—C. H. DIBBERN.

1. Feeding liberally for three weeks before an expected flow of honey, will accomplish it.—G. L. TINKER.

Stimulate by feeding sparingly until the harvest opens, then work for swarms, not honey.—A. J. COOK.

2. It will do it sometimes, but not always. Daily moderate feeding is better than liberal, for the purpose.— P. L. VIALLON.

1. They will do it themselves, probably too much. 2. That will help, but it may not pay in all cases.—C. C. MILLER.

Liberal feeding and contraction of the brood-nest will undoubtedly accomplish the desire of your heart.— EUGENE SECOR.

1. If I desired to increase greatly, I would not do it by natural swarming. I would rear queens and divide, using full sheets of foundation. 2. Liberal feeding will promote swarming, of course, provided that it is done regularly and steadily, when natural resources are not abundant.—M. MAHIN.

Yes, and crowding the queen by contraction; but it is a poor way. We would prefer rearing good queens, and making swarms by dividing.—DADANT & SON.

If your yield is good, and you hive after-swarms, they should increase all you desire without feeding.—G. M. DOOLITTLE.

1. Have prolific queens, and do not try to secure any surplus honey. 2. If there is not an abundance of honey being gathered, judicious feeding will help.—A. B. MASON.

1. If there is a good honey-flow, they will be apt to swarm at least once. I have tried everything that I ever read of, to prevent swarming, but never succeeded. 2. Feeding will be a help, if honey is scarce.—MAHALA B. CHADDOCK.

Adopt the nucleus plan of "artificial" swarming; feed liberally when needed, and build up. Keep at least one-half of the colonies intact, to draw brood from, with which to build up the nuclei.—J. E. POND.

A good honey-flow is what you should have. Liberal feeding will help greatly—but, it is "dangerous." I think, upon the whole, if it were me, I should let Nature have her own way.— WILL M. BARNUM.

1. Hive each swarm on a new location, and retain with the swarm only sufficient bees to build up into a good colony, letting the rest go back. If that does not make it lively enough for you, feed in times of scarcity.—R. L. TAYLOR.

If the season does not furnish the means to your ends, produce them by feeding. Feed just enough to promote the rearing of brood, and feed daily. Do not feed so much as to gorge the combs, but feed just enough—observe closely, and feed "just enough."—J. M. SHUCK.

You can encourage swarming by giving the bees only just enough surplus room at once to keep them busy; that is, none to spare. Do not keep them well shaded, but allow solar heat to make their home uncomfortable. Pray for a favorable season for swarming. You need not feed.—JAMES HEDDON.

1. Go right ahead, and take all the comb honey that you can procure by good management, and if the season is a good one, the bees will swarm more than would suit me. 2. Yes, if your bees are short of stores, liberal feeding will hasten swarming, if done at the right time in the spring; and if the bees have plenty of stores, uncapping some of it will stimulate breeding. It will pay you best, in the long run, to take all the honey you can while your bees are increasing.— G. W. DEMAREE.

Probably it will be as well to divide the colonies and thus increase them. If honey is plenty, they will not need feeding; if it is not, then feed them liberally.—THE EDITOR.

CORRESPONDENCE.

VIRGIN QUEENS.

The Successful Introduction of Virgin Queens.

Written for the American Bee Journal
BY E. STRONG.

In the near future a method of introducing virgin and "old maid" queens will be established, which will be reasonably successful in the hands of experienced men. We shall all be pleased to learn how; and to this end I will relate the circumstances of a recent case:

Finding several young queens in one hive, kept in by the bad weather, I separated them into small nuclei. The bad weather continued, and at the end of five days a swarm issued from another colony, as soon as the sun came out. From the old colony I removed two frames from one side, and in their place I put the two frames, bees and all containing the virgin queen, leaving her on the outside, and leaving a half-inch space between the two frames and the other frames of the old hive.

The old hive was placed in the rear of the new swarm. This space being more than a bee will readily cross, acts, in this case, as a division-board, and the young queen will naturally remain in her division for a number of hours, but not longer, and she probably will not be seen there again. The increased heat and noise of the new home will induce her to mate without delay, and her return to the old stand of the nucleus, increase the danger of her loss.

This introduction succeeding, I tried another of similar age (five days), by placing her on a frame of mostly young bees, put down outside the hive. But they made a furious attack, and the poor queen yelled for help. By the peeping of an introduced queen, the "balling" can be discovered without opening the hive.

This introduction *not* succeeding, I returned her to her nucleus, and

when she was seven days old, and unmated, I succeeded in introducing her to a full colony, covering 30 frames and filling three brood-chambers. This colony lost its queen with clipped wings, by trying to swarm. Three frames were removed from the top story, and at the side, and the three frames of the nucleus substituted, leaving space as before. There were about fifty bees with the queen in the nucleus. In two days after, I found her in the bottom story mated, but not laying. This young queen was very dark, so that there was no question as to identity.

I am aware that to make these introductions beyond question, the wings of the queens should have been clipped, so that they would have remained unmated; but some one else can try that. I am satisfied.

Of course, hatching queens can be run in at the entrance, or under the quilt, with an average loss of about one-third.

Kalamazoo, Mich.

QUEENS.

Results of Experiments and Observations.

Written for the American Rural Home
BY G. M. DOOLITTLE.

In this article I wish to give a bit of my experiences as regards introducing queens, rather than to point out any particular method for so doing.

In a practice of nearly twenty years, many things have come under my observation which have been interesting, and have thrown light on an operation which has many times proven, not only to myself, but to multitudes of others, to be not always a successful one.

Heretofore the loss of the queen has been charged mainly to the bees rather than to the queen, parties even being so rash and provoked as to crush a ball of bees enclosing a queen, under their feet, when in reality the queen was the one to blame. Many queens would never be molested in the least by the bees if they would behave themselves as they did in the hive they were formerly in; and I venture the prediction, that when we arrive at a plan that will always place the queen with strange bees in the same quiet condition she was in while in the hive in which she was reared, we shall be successful every time. To substantiate this position, I will give some of my experience in the matter.

Some years ago I had a queen which began failing during the forepart of the season. Wishing to replace her, I went to a nucleus and took out their queen, which had been laying about a week; then going to the colony having the failing queen, I removed her and placed this young queen on the combs instead of the old one. She immediately commenced to "peep," just as a virgin queen does when there are rivals in the cells in a hive calculating to send out an after-swarm. To this the bees paid no attention, but came to her, with the intention of feeding her, to all appearances; but instead of taking food offered by them, she put out her foot and struck at them, or laid hold of their heads with her feet, and continued "peeping." She passed around among the bees, "peeping" at intervals for about five minutes, I should judge (I watching all the while), when she came to a young bee just hatched, all white and fuzzy. She immediately uttered a short "peep" and then clinched the little thing, and stung it so it curled up and died in an instant. At this the bees became exasperated, and showed signs of hostility for the first time, they now beginning to lay hold of the queen for the first time, as far as I had noticed.

With a little smoke I dispersed them and still continued to watch. In about 15 minutes she stung and killed at least a half dozen of these young bees, and was seized each time by the bees, but I as often dispersed them with smoke; at all other times they were ready to feed her and treat her as they did their old queen. Once or twice she took food of them, but as a rule, struck at them with her feet when they offered her food. I closed the hive and left them then.

Upon looking the next day, I found queen-cells started, and supposed her dead; but in about two weeks, or such a matter, they cast a swarm, and, lo! there was my queen running around in front of the hive, for her wings were clipped. I opened the hive, but found no eggs or brood (except sealed brood), cut off the queen-cells, and returned the bees, upon which she commenced laying, and made a fine queen. I have had several such cases since, yet none quite as persistent as was this queen.

Again I have had queens which the bees treated as they would their own queen, but they would not stay in the hive at all. They would run out at the entrance, often followed by a few anxious bees which would feed them and keep them alive. I had one out thus till I had put in another queen, and she had begun to lay when I found the first under the bottom-board of the hive with a few bees with her.

Thus many facts in my experience go to prove that the queen has more to do with the loss sustained in introducing than the bees. Well, says one, "If this is so, how can I remedy it?"

The plan I have lately adopted is this: Make a cage out of wire-cloth, having about 16 meshes to the inch, large enough so that it will cover some honey and quite a little hatching brood, by cutting little squares out of each corner, and then bending the sides up at right angles, so as to form a bottomless box, as it were.

Remove the queen you wish to supersede, shake the bees from the comb, and place your queen on it where there is some honey and hatching bees, and then place the cage over it, pressing the edges of the wire-cloth into the comb till the cage does not project beyond the surface of the comb more than half of an inch.

Hang the comb in the hive, leaving three-fourths of an inch between it and its fellows, so that the bees can go all around the cage.

In a few hours, or the next day, open the hive, and if the queen is reconciled to the strange colony, she will be quiet, and the bees quiet on the cage. When you find it thus, it is generally safe to lift the cage, when she will go quietly among the bees the same as she would have done in her own hive.

The presence of the young bees with her, which have hatched from the brood enclosed within the cage, has much to do in expediting matters and reconciling the bees and queens.

If on the contrary the queen is found running around, and the bees are biting at the cage, do not let the queen out, till such conditions cease to exist.

The above are the conclusions which I have arrived at, which may not be entirely correct, still I believe them to be nearly so, in the main. I have introduced hundreds of queens as above, and rarely if ever lose one.

Borodino, N. Y.

SEPARATORS.

Their Proper Width for Use in One-Pound Sections.

Written for the American Bee Journal
BY JAMES HEDDON.

The 4¼x4¼ sections to hold a single pound of honey usually measure just 4 inches in the clear, inside. If the separator is less than 3¼ inches in width, the apiarist will not use it long before he will sincerely wish it was not.

A quarter of an inch is ample passage way for bees when passing one at a time, there being no wood directly above the edge of this separator, but a bee-space; if you will measure from the upper edge of the tin on an angle of about 45° to the nearest edge of the wood to the section, you will find you

have ⅜ of an inch, or sufficient space to allow two bees to pass at a time, if one was carried on the back of the other.

Every observing comb-honey producer well knows that under conditions which frequently happen during our honey harvests, if these separators are misplaced the least bit, so as to leave a little more than ¼ of an inch between the top edge of the separator and the line of the edge of the top-bars of the sections, the troublesome extended cells will result. Where the wide frames, or storing cases, are not to be reversed, even with a 3½-inch separator, I prefer to put it 1-16 of an inch nearer to the top than the bottom of the inside of the sections.

Dowagiac, Mich.

HONEY.

Is it Digested Nectar? If Not, What is It?

Written for the Rays of Light

BY J. E. POND.

I am not a scientist, neither do I wish to provoke an acrimonious discussion, still I ask in all seriousness, What is honey?

In days past we have been told it was the nectar of flowers from which the water has been evaporated by the bees. This answer would seem "to fill the bill;" still, when viewed on a strict scientific basis, it does not, for the reason that it does not quite "come up to the mark," in that it does not "tell the whole story."

Next we hear of some digestive process that this nectar undergoes in the stomach of the bee; this again does not satisfy us, for the reason that it neither explains that "digestive process," or offer any proof of the same.

Then we have the bee-sting or "formic acid" theory, which, while plausible, is not satisfying; no proof at all being offered. In fact, all and every idea advanced is theory, and theory only.

Now what is the fact? Is there anyway by which the truth of the matter can be arrived at? Diluted sugar, when sealed up in the comb, comes out as sugar; if scented or perfumed in any way, that distinct scent or perfume remains. Now if sugar-syrup undergoes no change while being carried to and deposited in the hive, what evidence is there that the nectar of flowers undergoes any change while in transportation to the hive or after being deposited therein? Can any one explain, if any digestive change does take place, just what that change is? or why it does not affect sugar-syrup or other artificial food, as well as the nectar of flowers?

As I said at the beginning, I am not a scientist. I am after information. I do not want theories, though, but facts; I want to know if any one does *know anything positively* about the matter; or whether any one has by any experiments conducted on purely scientific principles, ascertained any facts that they dare give as such, that explains the matter fully and completely? That is, Can any one tell us why sugar syrup remains such, while nectar undergoes a chemical change in the stomach of the bee, while in process of transportation?

For myself I believe as a matter of theory, the "formic acid" exponents have the best of it; but who can say that they are right or wrong?

North Attleboro, Mass.

One Hundred Years Ago.

(TUNE—*A Thousand Fathoms Deep.*)

Our's a land baptized in blood,
One hundred years ago!
Brave and grand, it proudly stood,
One hundred years ago!
In Freedom's name it scaled the height,
Of peace, and truth, and moral might,
And planted there its starry sign,
Its honored flag—our flag divine!
One hundred years ago!
One hundred years ago!

Wives and mothers mourned their slain,
One hundred years ago?
Bore this cross of cruel pain
One hundred years ago!
God's will it was that heart and hand,
Should strike the shackles from our land,
And cause the power of pen to trace
Eternal rights for all the race
One hundred years ago!
One hundred years ago!

Loyal, earnest, gathered few,
One hundred years ago!
Planting better than ye knew,
One hundred years ago!
Sixty millions now we count,
Who daily drink from freedom's fount
And kneel before the shrine
Ye built by deeds divine
One hundred years ago!
One hundred years ago!

—*Ella Dare, in the Inter-Ocean.*

SEPARATORS.

Their Use a Necessity in Producing Comb Honey.

Written for the Western Plowman

BY C. H. DIBBERN.

As to separators: I claim that no strictly A No. 1 honey can be produced without them. What I mean is, that it is so perfectly built in the sections that all can be glassed on both sides if wanted. I always thought that honey produced with separators was whiter, and there is good reason for this, too, as separators get fully half of the travel of the bees.

I know that many otherwise good bee-keepers differ from me on this point, and even claim that they can have comb built almost as straight without separators. I have never seen such, and I cannot produce honey without separators that is satisfactory to me. If only a small quantity for one's own use is produced, it would make little difference. When thousands of sections have to be handled, however, combs should be so straight that any two should fit up against each other without the comb interfering.

I imagine that in the near future, grocers will be more discriminating on this point, when they once fully realize the difference. They may be impertinent to ask, "Did you use separators?" and if not, refuse to buy, or "dock" you one to three cents per pound. Some have contended that not nearly so much honey would be stored if separators are used; but my experience is that it makes no difference. I certainly do not want any surplus honey stored without separators.

Dividing Colonies.

A party writes me and asks why I do not divide my bees, and thus get around the nuisance of natural swarming; and claims that it is much the best way. Now, I had the "dividing craze" some 15 years ago, and it proved no "howling success," either.

The objections to dividing about swarming-time, are many and well founded. Take a good, strong colony, that might be expected to swarm soon, and storing nicely in the sections, and what is the result? The bees are divided, each half, if rightly done, and a queen given has double the space needed in the brood-chamber that will be filled before there is any more storing in the sections. Perhaps if the hive had been left alone, it would not have swarmed for two or three weeks, and perhaps not at all, and storing surplus would have been going on all this time. It is not dividing that we want, but rather contracting and doubling up.

The Kind of Sections.

I am often asked what kind of sections I prefer to use, and if it is really necessary to use separators? I have tried many kinds of sections, and studied the matter a good deal, and although I use several sizes, I prefer the white wood one-pound dove-tailed sections. They are so immaculately neat, and the demand seems to be more for that size, so that honey in such sections sells for one and two cents more than larger sections.

Now the question arises, can we produce honey as cheaply in the one-pound as in the two-pound sections? I have studied this matter for some years, and have come to the conclusion that there is little difference as to

cost. Of course, two one-pound sections cost a little more than one two-pound section, but as they are sold with the honey, they will weigh a little more, too. I think that the bees will store just as much in one size as the other, and I think that the one-pound sections make the best-sized cases to put on the hives. They are also a little the nicest to handle in every way.

The one-piece basswood sections I do not like so well, although they are more quickly put together. They are never so white, and are often inclined to be "woolly" and rough. The naughty corner is also liable to spoil some adjoining comb, if not carefully handled.

Milan, Ills.

MICHIGAN.

Its Northern Resources for the Production of Honey.

Written for the Michigan Farmer
BY GEO. E. HILTON.

As several have written me, asking if I thought their locality adapted to bee-keeping, I have prepared the following, hoping it will aid many in judging for themselves.

If one takes the time to observe, and the trouble to enumerate them, he will be astonished at the almost endless variety of honey-yielding plants within the State. It would require a skilled botanist to name them all. The all-wise Father has provided nearly all trees and plants with either honey or pollen to attract the insect world. He spreads a continual feast for the bee, that the important object of perfect fertilization may be more easily attained.

The bee that sips from flower to flower, rollicking in the golden dust among the newborn anthers, playing "hide and seek" in the opening corollas, is performing a work of untold value in the wise economy of nature.

The honey secreted in the blossom is for the purpose of inviting cross-fertilization, and to prevent in-and-in breeding. If no insect is there to utilize the drop of nectar, it is evaporated and scattered to the four winds of heaven. No one is richer for the ungathered sweets; and no one is poorer whose fields are searched by the tireless little workers, whose instinct leads it to garner the evanescent riches which, of a truth, take to themselves wings and fly away.

From the trailing arbutus, that peeps out of the snow on some hillside, to the last frost flower in autumn, there is almost a continual succession of honey-producing flowers, whose wealth of nectar ought to be utilized as one of the resources of this grand State.

California may occasionally astonish us with her magnificent honey crop, but in Michigan, where "the early and latter rains" are not only promised but sent, we are always confident of a reasonable surplus.

The pastures and roadsides are covered with white clover, which yields the finest honey in the world. The rivers and lakes are generally skirted with basswood timber, one of the best honey-producing trees in America, yielding a nectar that is prized for its beautiful amber color and aromatic flavor.

Every fence corner and neglected field is planted by the hand of Nature, as though she were trying in some way to counteract man's shiftlessness, by making the earth bring forth abundantly some of the good things of life.

It is of importance to bee-keepers to know just when this succession of bloom occurs, that they may have their bees in the best possible condition to secure the nectar. So far as my obsevation and knowledge extends I will briefly enumerate them:

About the first pollen comes from willow and soft maple, usually about the middle of April, varying with the season. In the early part of May comes the hard or sugar maple, and this tree deserves more than a passing notice; it produces both honey and pollen in large quantities, and I sometimes feel that were our bees in the same condition they are at the approach of basswood bloom, we would receive nearly the same results.

Fortunately, my bees three years ago were very strong early, and many of them stored considerable honey from this source, and it being followed closely by the raspberry and blackberry bloom (with which this country abounds), I securred at least a thousand pounds of surplus previous to the opening of white clover bloom, from 60 colonies in my home apiary.

White clover opens from the 1st to the 15th of June, and in my 12 years of bee-keeping, has but once failed to give us a fair surplus.

There is no gap between clover and basswood in this latitude; in wet seasons the clover often continues until after basswood ceases. The basswood opens from the 4th to the 20th of July, according to seasons, but cannot be depended on in this latitude; it is more sensitive and more dependent on atmospheric conditions than any other bloom. In this latitude we usually get one or two days however, and once I remember that ten days it secreted honey during the bloom. I find it does better along rivers and lake shores than on the uplands.

After this there is a gap in the honey-flow until the buckwheat, fireweed, golden-rod, asters and boneset come into bloom, in which, aside from buckwheat, this country abounds; it usually affords us some surplus, but the greater part goes to the brood-nest for winter stores; in fact I have never had to resort to sugar for winter stores, and I hope I never shall.

There are many more annuals and shrubs that go to make up the honey flora of northern Michigan, and we have some disadvantages our Southern brethren do not have, but taking all in all, I think the northern half of the lower peninsula better adapted to the pursuit of bee-keeping, and that the honey is of better quality than in the southern half.

Fremont, Mich.

Z. A. CLARK.

Bee-Keeping Declared Not a Nuisance.

A Condensed History of the Case,
DEFENDED BY THE UNION.

In May, 1887, the Arkadelphia City Council, Ark., passed an Ordinance, which, with its preamble, read thus:

The preamble states that, "Whereas, a petition from many citizens of Arkadelphia, having been previously presented to this Council, setting forth that the raising of bees or keeping them in the City of Arkadelphia was injurious and destructive to property, such as early fruit, and dangerous to citizens when riding in vehicles or on horseback upon the streets, and a pest in many of the houses in said city, having stung many persons, and especially children, while walking the streets and sidewalks."

The ordinance as adopted is substantially as follows:

"Be it ordained by the City Council of the City of Arkadelphia, That it shall be unlawful for any person or persons to own, keep or raise bees in the City of Arkadelphia, the same having been declared a nuisance.

"That any person or persons keeping or owning bees in the City of Arkadelphia are hereby notified to remove the same from the corporate limits of the City of Arkadelphia within thirty days from date hereof."

SECTION 2 provides a penalty of not less than $5.00 or more than $25.00 for a violation of the ordinance.

The cause for this action was the fact that Mr. Z. A. Clark, who has kept bees in that city, was not in political harmony with those in power, and the latter sought to punish him and get rid of his presence, by prohibiting the keeping of bees within the corporate limits of the city.

Some of the more ignorant ones declared that his bees were "eating up the peaches!" and others, that they were "eating up the young ducks!" Preposterous as it may appear to those who are better informed concerning

the formation and habits of bees, yet it is true that many accepted these ridiculous charges as *truth !*

Mr. Clark was ordered to remove his bees by June 6, 1887. He did not remove them ; and on Jan. 2, 1888, he was arrested; and fined, day after day, for ten successive days, for maintaining a *nuisance*, by keeping his bees in the suburbs of that city.

Not paying the fines, Mr. Clark was committed to the city jail, by order of the Mayor.

Mr. Clark being a member of the "National Bee-Keepers' Union," very naturally appealed to it for protection. Being clearly in the right, and worthy of defense, the "Union" engaged the services of Major J. L. Witherspoon, ex-Attorney-General of Arkansas, and several other attorneys, to defend the bees and their keeper.

This case was important because it was the first time that it was sought to exterminate the bees from the suburbs of a city, by declaring them a nuisance, by Ordinance. If allowed to stand, it would be a precedent to be followed, wherever a bee-keeper was obnoxious to the ruling majority ; his *rights* would be ignored, and the bees condemned by ignorant and prejudiced persons for selfish motives.

The National Bee-Keepers' Union, therefore, concluded to carry the case to the Circuit Court, for it would be very detrimental to the pursuit to allow an ordinance against bee-keeping to remain uncontested, and to be quoted as a precedent against the keeping of bees, because it had been declared "a nuisance" by a City Council in Arkansas.

By the enforcement of that unlawful ordinance of the city, Mr. Clark was deprived of his liberty, and the constitutional rights guaranteed to every citizen in the United States.

Even granting that it was wrong in Mr. Clark not to obey the city authorities, he should have had a speedy trial by an *impartial jury*—all of which had been denied him. Even when released under a writ of *habeas corpus*, he was, within three hours, re-arrested and fined.

After demanding a change of venue, because of the prejudice of the Mayor, that functionary again fined him, denying him his constitutional rights.

The Circuit Court convened in July, 1888, and the Hon. Sam W. Williams, of Little Rock, was added to the attorneys for the Union. Our attorneys, Judges S. W. Williams, Witherspoon, Murray and McMillan, made a motion to dismiss the case against Mr. Clark, "because the ordinance of the City of Arkadelphia, on which the prosecution is founded, is void and in violation of law."

Then Judge S. W. Williams read section after section of law, in Mr. Clark's favor, showing that a man's right to hold property is paramount to all Legislative power; and any attempt to take away such right is unconstitutional.

After which, Judge Hearn stated to the attorneys that he had lived a long time in Arkadelphia, and that bees had been kept there all the time, and that he had not heard any complaint until this case came up. He added that the case would go to the Supreme Court, no matter in which way it was decided in his Court, and he wanted to be found on the right side when decided in the Supreme Court.

He then sustained the motion of the attorneys for the Union, to dismiss the case, and he declared the ordinance of the city "*illegal and void !*"

The city attorney then gave notice of his appeal to the Supreme Court.

The appeal to the Supreme Court was heard on June 22, 1889.

Messrs. Crawford & Crawford, attorneys for the city, argued in favor of the validity of the ordinance. Their argument may be summed up thus :

In Huckenstein's Appeal, 70, Penn., St., 102, s. c., 10, Am. Rept. 669, *supra*, it was said, "If a man lives in town, of necessity, he must submit to the consequences of the obligations of trades, which may be carried on in his immediate neighborhood, which are *actually necessary* for trade and commerce, also for the enjoyment of the inhabitants of the town." However convenient for Appellee to own, keep and raise bees in the City of Arkadelphia, it cannot be contended that the business is at all necessary for trade and commerce, the enjoyment of property, or for the benefit of the inhabitants of the city. His busness can be carried on just as successfully at a distance from the city, without interfering with the comfort and convenience of its inhabitants.

Bill Nye, in a recent communication to the press, tells of a Mr. Joseph Lininger, near Huntington, Ind., who has established there a "Skunk ranch," and is doing a very profitable business in that line. Should he conclude to move his ranch into the City of Arkadelphia, he could object to having his business declared a nuisance, with as much show of right, as the Appellee now maintains.

"There is no common right to do that, which, by a valid law, or ordinance, is prohibited ; and courts will not declare an authorized ordinance void because it prohibits what otherwise might lawfully be done."

It is contended that this ordinance is invalid, because, instead of regulating the keeping of bees, it prohibited the business altogether. We can see how the City could regulate the keeping of goats, dogs, hogs and cows, but it would be impossible to pass an ordinance allowing bees to be kept within the corporation, and at the same time regulate the business so as to prevent them from flying abroad. You cannot build a wall high enough to keep the bee from ranging. Suppose an ordinance should be passed, allowing the owning, keeping and raising of bees in the city, but prohibiting any one, under the penalty of a fine, from allowing his bees to fly in the streets, or trespass upon other people's premises. Such an ordinance, with the condition annexed, would deprive Appellee of the claimed right, and would be a kind of Legislative juggling that would

"Keep the word of promise to the ear,
And break it to the hope."

This ordinance in this case would not have been a whit better if it had allowed every citizen to keep one or more hives of bees. If one hive would not be a nuisance, how many would be ? Where is the line to be drawn ? We contend that the City Council ought to be, and is, the only proper judge, and its action will be final, unless it has clearly exceeded its authority in the passage of the ordinance.

Among the abstract of decisions, prepared for the Arkansas *Gazette* by W. H. Pemberton, of the Little Rock Bar, dated Saturday, June 22, 1889, we find the following opinion by the Court :

127 (Crim.) City of Arkadelphia *vs.* Z. A. Clark.

The Appellee Clark was convicted in the Mayor's Court of Arkadelphia for a violation of the city ordinance. The ordinance under the prosecution was had provided that it shall be unlawful for any person or persons to own, keep or raise bees in the City of Arkadelphia, the same having been declared a nuisance. Upon an appeal to the Circuit Court, that Court sustained a demurrer filed by the defendant, and dismissed the prosecution.

HELD.—Neither the keeping, owning or raising of bees is in itself a nuisance. Bees may become a nuisance in a city, but whether they are so or not, is a question to be judicially determined in each case.

The ordinance under consideration undertakes to make each of the acts named a nuisance, without regard to the fact whether it is so or not, or whether bees in general have become a nuisance in the city. It is therefore too broad, and invalid.

Affirmed.

The reply of Judge Williams was lately given in full, because of its great importance and value for reference.

THOMAS G. NEWMAN,
General Manager.

ZOOLOGICAL.

Ravages of the Grain Plant Louse, Incorrectly Called "Green Midge."

BY PROF. A. J. COOK.

FRIEND NEWMAN :—Having received many letters about this insect, asking for replies in the AMERICAN BEE JOURNAL, I send you the following, being Bulletin No. 50, published by the "Agricultural College of Michigan," which I wrote for the Experimental Station on June 27, 1889. This will

answer all the questions sent to me, and anticipate others, perhaps. It is as follows:

The present season is characterized by one of those wide-spread and very damaging insect invasions that is so discouraging to the farmer. I refer to the present onslaught on the wheat crop by the grain aphis or plant louse, *Aphis avenæ*. This louse attacks wheat, barley, oats and rye, and is to be found in small numbers on these grains every year. This year occurs one of those terrible attacks that seem to threaten very serious loss. This raid extends from Ohio west to Indiana, and north to Grand Rapids, Mich. Of this much I am certain. I do not know whether it reaches in such overwhelming numbers to other States or not. So abundant are these lice that they have attracted wide attention and awakened serious alarm. For the past two weeks I have received daily numerous specimens of these lice with the inquiry: What is to be the outcome of this attack? I have received as high as 15 such communications in a single day.

What is It?

This is a plant louse, or aphis, and is very similar to those that attack our house plants, cherry, plum and apple trees, cabbages and hops. Indeed, so numerous are the species of these lice that hardly one of our valued plants but has its plant-louse enemy. These plant lice have flask-shaped bodies, are usually green or black, though sometimes they are yellow or red, and are usually quite small. In looking at the grain aphis at this season, four forms will be seen: A small wingless louse, a large wingless form—the full grown apodous or wingless louse; the pupa of the winged louse which has short wing pads; and the mature winged louse. We usually find these four forms at some season of the year in all plant-lice colonies.

Frequently, and this was true a few days ago of this grain aphis, we only find the wingless forms. Later the pupæ with wing-pads and the fully developed winged forms are seen. These winged lice are doubtless developed that the lice may spread before their food is wholly destroyed, and they are confronted by famine. The mature wingless louse of this grain aphis is about one-tenth of an inch long. The winged louse is nearly twice as long to the end of the wings.

This louse is not quite as slim as is Aphis mali (see Fig.) As will be observed by examining the lice, or by studying the figure, these lice have long, seven-jointed antennæ—the horn-like organs appended to the head, and the winged lice have simple veined wings. The main vein of each wing is branched. There are four branches in the front or primary wings. The outer one is strongly curved, and the next one branches twice. There are two simple branches on the posterior wing. This style of venation is characteristic of the genus aphis. We also note (see Fig.) that there are two short spine-like projections, black in the grain aphis, on the hind part of the abdomen. These are the nectaries or honey-tubes; so called because there frequently exudes from them a nectar which attracts ants and bees to these lice.

Just now (June 26, 1889) a species of plant louse on our Norway spruces are secreting nectar so profusely that in the early morning it stands on the leaves in drops, so that it can be tasted. It seems very pleasant to the taste, and is giving the bees a fine harvest. This peculiar physiological characteristic serves the louse in this way: by attracting ants, wasps and bees, the birds and insect enemies of the lice are frightened away. I find that the oats and wheat are visited by ants that the nectar secreted by this grain aphis may be secured. The beak of this grain aphis is strong, dark in color, and about one-third the length of the body. With this the louse sucks the sap and devitalizes the plants. The feet and joints of the legs, and also the antennæ are dark or dusky in color.

The color in these lice varies greatly. Early in the season while they are on the leaves or stalks they are green. This is the color now of all healthy lice on the oats. After they migrate to the heads they often turn yellowish green, and even rust red, though I find that now the green color prevails even with the lice which are gathered thickly about the kernels. Some of the winged lice are very dark, almost black. It is probable that the nature of the food affects the color. As the berries mature I think the yellow and red colors will prevail to a larger degree.

Reproduction of the Lice.

The reproduction of plant lice is very curious. Late in the season we find both sexes. This is the only time that we find males. The sexes now pair, and eggs are laid about buds, in crevices, or where they will best survive the winter. In the spring only females hatch from these eggs. These do not lay eggs, but each gives birth to from three to five lice each day. In about four or five days these young lice begin to produce living lice, each contributing daily its four or five new lice to help on the general devastation.

Such early and rapid breeding implies great nutrition, and we easily understand why the plants wither and dry up. We also see how the lice become so quickly numerous and widespread. Calculation shows that in less than a month, if no lice die or were killed, a single louse might be the progenitor of more than several million lice. To follow the numbers further defies comprehension. Many have written me: "We cannot imagine where the lice could come from so quickly and rapidly." The above fact explains this physiological riddle.

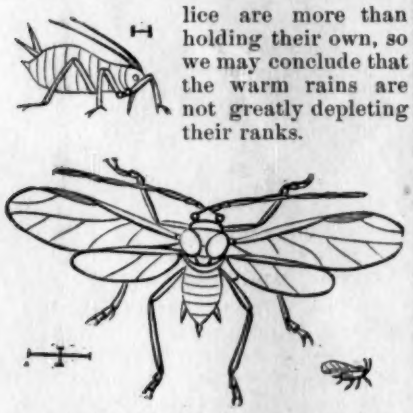
Why so Numerous this Year.

This is not the first season that this avenæ has come like a destroying flood upon the grain fields. In 1861 the lice swarmed upon the cereal crops of New England and New York, at which time Dr. Asa Fitch fully described it in his sixth report. In 1866 and again ten years later it did great damage in various sections of the West. We see then that this louse does not come yearly, but only at long intervals. Why is this? It is doubtless owing in some measure to the weather, but more to its insect enemies.

We readily see that its enormous prolificness would make it as the sands of the seashore every year, except that some natural agent held it in check. Fitch describes three such enemies. Even now, as we visit the oat and wheat fields, we find many forms different from any previously described. These have short, rounded bodies, which are of a dirty white color. The cause of this is that these are attacked by parasites, which are eating them up.

We have reared several of these little benefactors, and find them now busily engaged in the fields laying the eggs that will destroy the lice. These minute parasitic insects lay a great many eggs, one in each louse, and their presence and prosperity mark the doom of the lice. Thus through the agency of these minute parasitic forms, aided by climatic influences, we are to be saved from a raid by this grain aphis next year, and will be greatly benefited this year. Indeed, in some cases, these little friends will very likely save us from serious damage. Why the parasites are not able to come successfully to the rescue each year is still unknown. Very likely this problem will receive a very valuable practical solution in the future. In these parasites the entomologist sees the doom of the lice, but not, I fear, till great harm is done.

Dry weather is a great promoter of insect productiveness. It is more than probable that the exceeding drouth of 1887, 1888, and of the April and May just past, together with the mild winter of 1888 and 1889, have had much to do with the present invasion. We might expect much aid from our frequent June rains, but I fear they were too late. Observation shows that the



Apple Tree Plant Louse—*Aphis Malt.*
Winged form, natural size, and also much magnified —Wingless form, much magnified. The short lines show the natural size.

lice are more than holding their own, so we may conclude that the warm rains are not greatly depleting their ranks.

Where the lice are very numerous, as they seem to be over a wide-spread area of our country, they must do great injury. Where ten or twelve are collected about a single kernel of wheat, as I have actually seen in the past few days, there is little hope for that kernel. I have counted 160 lice on a single head of wheat. It is hoping too much of the little parasitic flies to expect them to save the present crop. We can but expect much injury, especially where the lice are in such countless numbers as are now seen in many of our wheat fields of Indiana, Ohio, and Michigan.

The excellent specific against plant-louse ravages, the kerosene and soap mixture, cannot be used without much injury to the crop. To apply it might be like the jump from the frying pan to the fire. Again, the lice are so protected by the close cluster of the kernels that very likely the remedy would not be fully effective. I could not, therefore, recommend its application in this case. We are now making extensive and accurate experiments, so that at the time of a future raid we can speak with positiveness in this matter. We are aiming to find just what the damage is, just how many lice it requires on a head or kernel to blast it, and just how effective the remedy is, and how serious the damage of its application will be to the plants.

The name "green midge," which is going the rounds of the papers, is very incorrect, and should not be used. The Hessian fly and wheat midge are very different insects. These midges are two-winged flies, whose larvæ are footless maggots. They belong to the great two-winged fly order, Diptera, while these are plant lice or aphides, and belong to the order of bugs, or Hemiptera. Let all speak of this as the grain aphis, or plant louse, and not as the green midge, which is entirely wrong, as they are not always even green in color.

CONVENTION DIRECTORY.

1889.	*Time and Place of Meeting.*
Aug. 20.—	Northern Illinois, at Guilford, Ills. D. A. Fuller, Sec., Cherry Valley, Ills.
Aug. 31.—	Haldimand, at Fisherville, Ont. E. C. Campbell, Sec., Cayuga, Ont.
Sept. —.—	Maine, at Livermore Falls, Me. J. F. Fuller, Sec., Oxford, Me.
Sept. 5.—	Erie County, at Buffalo, N. Y. O. L. Hershiser, Cor. Sec., Big Tree Corner, N. Y.
Dec. 4, 6.—	International, at Brantford, Ont., Canada. R. F. Holtermann, Sec., Brantford, Ont.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

SELECTIONS FROM OUR LETTER BOX

Good Prospect for Linden Honey.—J. S. McIntire, Maple Plain, Minn., on June 28, 1889, writes :

Bees in this locality are generally doing well. I had a prime swarm on June 10, and to-day they have the brood-chamber full of comb, and 48 sections nearly filled and capped. They had nothing but starters to work on in either chamber. White clover is good, and the prospect for linden never was better. I examined one tree to-day, and could not find any worms, as described on page 403. I visited my friend Albert Moses (5 miles from here) to-day ; he has over 100 colonies, and his bees are just booming. The prospects now are very flattering for a big honey yield. I am located 20 miles west of Minneapolis.

Too Much Rain.—C. D. Robinson, West Groton, N. Y., on June, 17, 1889, says :

I put 44 colonies of bees into winter quarters, and in the spring I had 38, all in good condition ; but it has rained for the last three weeks almost every day, and still rains. I had 2 swarms on June 14. I hope that it will stop in time to secure the linden honey.

Linden Bloom—White Clover.—J. M. Young, Plattsmouth, Nebr., on on June 28, 1889, says :

Bees are doing their level best on the linden bloom throughout this section, and from morning until night. The white clover was extra good, and bloomed early this year, and has crowded the hives full of bees. We have already placed both new comb and new extracted honey on the market, and the prospects are excellent for a large crop. Bees are swarming all over the county, and the weather is fine.

Bees Doing First-Rate.—James Jaggard, Oak Hill, Ills., on July 1, 1889, says :

My bees are doing first-rate. The first swarms have stored 40 pounds to the hive, and they are swarming besides storing honey. I never knew the first swarms to swarm so much. My location is a first-rate one, having white clover in abundance. Basswood is beginning to bloom, and we have any quantity of it.

Extracting Honey.—I. N. Arnold, Richmond, Iowa, on June 28, 1889, writes :

We extracted 1,900 pounds of honey in eight hours, with a three-frame honey-extractor. I broke my four-frame extractor just when we were ready to commence.

Covered with Bloom.—W. V. King, Princeton, Mo., on June 24, 1889, says :

Bees are doing well. I never before saw such a large crop of white clover bloom as we have now, and have had for the last five weeks. The pastures are almost as white as if covered with snow. North Missouri may be put against the world for clover, timothy and blue-grass.

Bees in Fair Condition.—J. P. Montgomery, Cordona, Ind., on June 26, 1889, says :

I think that the AMERICAN BEE JOURNAL is one of the best bee-periodicals that can be found. I cannot do without it. My bees are in fair condition. I have 23 colonies, which I am working for comb honey.

A Great Honey-Flow.—S. J. Youngman, Lakeview, Mich., on July 2, 1889, says :

Bees emerged from the cold spell of one month ago in good condition, and have been gathering honey for three weeks, from the clovers very rapidly, and nothing could prevent excessive swarming, some colonies having swarmed three times. I will give an instance of the great honey-flow : A friend near me hived a swarm in a Langstroth hive, on 8 frames, with 28 sections, which were filled in seven days, and it *swarmed again !* I think that this great honey-flow will be followed with one equally as great from the basswood bloom, as I have personally inspected the trees, and find the buds very promising.

Misrepresentation about Comb Honey.—John Hager, Jr., Arabi, La., on July 2, 1889, writes:

I have sent you a copy of the New Orleans *Times-Democrat*, wherein is an article copied from the Philadelphia *Record*, headed thus: "Bees Can Take a Rest." If such should be a fact (which I can hardly believe), it will cause many bee-keepers to seek for new fields of employment; but as I do not believe that there is a word of truth in the article, I think that it is the duty of all bee-keepers to have the article in question pronounced a myth, and a base fabrication, which will cause honey to become a drug in the market, consequently it will take years to build it up again. Honey, as we are all well aware, is cheap enough now—how much lower it will fall in price, we cannot tell, if such articles like the one referred to are allowed to go by unheeded.

[We are making it hot for the Philadelphia *Record*, and all others who publish such fabrications. They ought to be sued for injuring a legitimate business, but alas, bee-keepers are afraid to furnish "the sinews of war." As proof of this, notice how poorly they support the Union.—ED.]

White Clover Plentiful.—Geo. Eidemiller, McGregor, Iowa, on June 27, 1889, writes:

Bees are doing nicely. I started with 24 colonies, spring count, and increased them to 38 colonies thus far by natural swarming. White clover is plentiful this year. My bees gathered honey freely in the forepart of May, but after that we had about three weeks of cold weather—cold north winds and frosty nights, which put the bees back, and so I fed them sugar-syrup to keep up their courage. I also sowed seven acres of Alsike clover, which the "old reliable" AMERICAN BEE JOURNAL induced me to do. It stands nicely.

Making up Lost Time.—J. W. Sanders, Le Grand, Iowa, on July 4, 1889, says:

I am too busy to write very much, but I will say that the bees in this section have been booming most of the time for the past three weeks. They seem to be trying to make up the lost time for May, when so many came very nearly starving out. It seemed odd to have to feed bees the first of June, to keep them from starving. Breeding was cut down a good deal by the cold weather. I will give a full report soon.

The Red, White, and Alsike Clovers.—A. J. & E. Hatfield, South Bend, Ind., on July 2, 1889, write:

The past week ended our very busy season of marketing strawberries, only to be followed by still greater hurry with raspberries and other fruits; and above all, with the care of nearly 200 colonies of bees that are doing exceedingly well on red, white and Alsike clovers, with a fine prospect of a good yield from basswood, to open in a few days. We never saw the first crop of red clover so full of seed as this season, and we attribute it to our Italian bees, or nearly so, as there are but few bumble-bees so early in the season.

Good Prospects for Basswood.—Wm. Lossing, Howard, Minn., on July 1, 1889, says:

Basswood never promised better; it will be out in a few days. I have good prospects for a heavy flow from basswood.

A Large Honey-Flow.—W. H. Shaner, Leechburg, Pa., on July 1, 1889, says:

We are in the midst of a great honey-flow, but the bees cannot work half of the time on account of the continued wet weather. The ground is white with white clover everywhere. Swarming is in order every day; I never saw the like—the bees build queen-cells when they cannot do anything else.

Heavy White Clover Bloom.—D. Millard, Mendon, Mich., on July 1, 1889, says:

We are now in the heighth of the heaviest white clover bloom that I have known in this section for five years. The weather has been rather too rainy, but it is all that could be asked to-day, and the bees are bringing in the honey with a joyful hum. The lindens do not promise quite as profuse a bloom as usual, but the leaves and buds are in a *very* healthy condition, and, with favorable weather, it cannot fail to furnish a good yield of honey.

The Season in Kansas.—Geo. W. Hanson, Chapman, Kans., on July 1, 1889, writes:

My 15 colonies of bees wintered nicely in the cellar, although I had 4 swarms as late as Sept. 7, which I fed. They commenced gathering pollen about March 15, from soft maple, from elm on March 21, cottonwood on the 28th, and from box-elder on April 7. They commenced gathering honey about April 13, from plum, peach, cherries and apple blossoms. I had 2 swarms as early as May 9, and 4 or 5 almost ready to swarm, when it set in cold and rainy—in fact there was nothing for them to gather honey from to keep them alive. There is no white clover that grows here, and from May 10 to June 15 they were left without anything to work on; then came the milk-weed. My bees are doing well now, and are getting ready to swarm. They are filling one-pound sections, and it looks as if I am going to have some honey to eat soon.

Honey and Beeswax Market.

CHICAGO.

HONEY.—The old crop is about exhausted, and not any new has been offered, especially is the foregoing applicable to the state of the comb honey market. Extracted, very little demand, at 7@8c.
BEESWAX.—25c. R. A. BURNETT,
June 10. 161 South Water St.

DETROIT.

HONEY.—No attractive honey in the market, and sales are slow at 12@15c.
BEESWAX.—24@25c.
June 22. M. H. HUNT, Bell Branch, Mich.

KANSAS CITY.

HONEY.—Very nice new comb in 1-lb. sections is selling at 18c. Very little old honey of any kind is on the market, and no new extracted.
BEESWAX.—None in the market.
June 26. CLEMONS, CLOON & CO., cor 4th & Walnut.

ST. LOUIS.

HONEY.—Extracted, in barrels, 6½@6¾. Excellent demand for clear, bright in barrels. Dark, 5½@6c.
BEESWAX.—Scarce at 23c. for prime.
May 22. D. G. TUTT & CO., Commercial St.

NEW YORK.

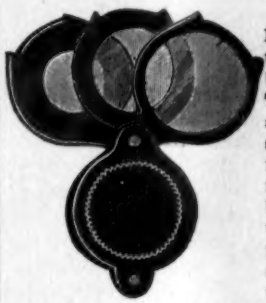
HONEY.—Extracted in good demand. We quote: Fine orange-bloom at from 7@7½c.; off grades of Southern, 60@70c. per gallon.
BEESWAX.—Scarce, at 26½@27½c. for good.
HILDRETH BROS. & SEGELKEN,
June 6. 28 & 30 W. Broadway, near Duane St.

BOSTON.

HONEY.—We quote: 1-pounds selling from 16@18c.; 2-lbs., 15@16c. Extracted, 8@9c. Sales very slow.
BEESWAX.—None on hand.
June 22. BLAKE & RIPLEY, 57 Chatham Street.

CINCINNATI.

HONEY.—We quote extracted at 5@8c. per lb., Demand slow for table use, and fair from manufacturers. Several lots of new comb have arrived, but quality being off, it finds slow sale at 12@14c.
BEESWAX.—Demand is good—20@22c. per lb. for good to choice yellow, on arrival.
June 22 C. F. MUTH & SON, Freeman & Central Av.



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BUSINESS MANAGER.

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Give a Copy of "Honey as Food and Medicine" to every one who buys a package of honey. It will sell lots of it.

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Paper Boxes—to hold a section of honey for retail dealers. We have two sizes on hand to carry sections 4¼x4¼ and 5¼x5¼. Price, $1.00 per 100, or $8.50 per 1,000.

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Please write *American Bee Journal* on the envelope when writing to this office. Several of our letters have already gone to another firm (a commission house), causing vexatious delay and trouble.

Pure Phenol for Foul Brood.—Calvert's No. 1 phenol, mentioned in Cheshire's pamphlet on pages 16 and 17, can be procured at this office at 25 cents per ounce. Not being mailable, it must go by express.

In order to pay you for getting *new subscribers* to send with your renewal, we make you this offer. For each yearly subscriber, with $1.00, you may order 25 cents worth of any books or supplies that we have for sale—as a **premium.**

A Home Market for honey can be made by judiciously distributing the pamphlets, "Honey as Food and Medicine." Such will create a demand in any locality at remunerative prices. See list on the second page of this paper.

Lovers of the Beautiful in art will learn with pleasure of the treat that is being prepared for them by the management of the Minneapolis Industrial Exposition, which re-opens on Aug. 21 for a period of 34 days. Art Director Smith has put forth every effort to make this season's art display the finest ever placed on exhibition in the West. In this he has been well seconded by the artists in the East, who have gladly furnished the choicest treasures of their studios for exhibition in the handsome art galleries of the Minneapolis, Minn., Exposition. Taken in connection with the best of other features provided, this season's Exposition will exceed in interest those of previous years.

New Posters for the AMERICAN BEE JOURNAL, printed in two colors, have just been printed, and will be sent free to all who can use them. They are very handsome, and will "set off" an exhibit at Fairs. It will tell Bee-Keepers how to subscribe, for "Subscriptions Received Here" is quite prominent at the bottom.

We will also send sample copies of the BEE JOURNAL, for use at Fairs, if notified a week or ten days in advance where to send them.

☞ The Northern Illinois Bee-Keepers' Association will hold its next meeting on Aug. 20, 1889, at R. Marsh's, in Guilford Township, 4 miles northeast of Rockford, Ills. D. A. FULLER, *Sec.*

☞ The International Bee-Keepers' Association will meet in the court-house, at Brantford, Ont., Canada, on December 4, 5, and 6, 1889. All bee-keepers are invited to attend, and State and District bee-keepers' societies are requested to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Anyone desirous of becoming a member, and receiving the last Annual Report bound, may do so by forwarding $1.00 to the Secretary.—R. F. HOLTERMANN, Sec. Brantford, Ont., Canada.

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ITALIAN BEES, per Colony, $5. Tested Italian Queens, $1.25 each; Warranted, $1; Untested, 70 cts. **OTTO KLEINOW,**
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R. G. COLBURN.

REPLY:—Yes; we keep Black, Carniolan and Italian bees in the same apiary. The Italians are kept pure by placing the Alley Drone-and-Queen Trap on all hives but one containing a select breeding queen. We do not even allow the drones to fly from all our pure Italian colonies. No helter-skelter mating of queens is permitted in our apiary. No dealer can send out *all* purely-mated queens who does allow it even in an apiary where all the colonies are supposed to be pure Italians. We are credited with sending out the best queens of any dealer, and can only keep up that reputation by using the Drone-and-Queen trap.

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The Hive and Honey-Bee, and Dadant's Foundation. See advertisement in another column.

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